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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Berard

SERIAL NO.: 09/852,855 GROUP ART UNIT: 1714

FILED: May 10, 2001 EXAMINER: Wyrozebski Lee

FOR: METHOD FOR EXTRACTING NYLON FROM WASTE MATERIALS

ATTORNEY DOCKET NO.: I4060/198355

I hereby certify that this correspondence is being deposited with the United States Postal Service as certified first class mail in an envelope addressed to: Commissioner of Patents, P. O. Box 1450, Alexandria, VA 22313-1450. on ~~January 18~~ March 11, 2005

Commissioner for Patents
P. O. Box 1450 Alexandria,
VA 22313-1450

DATE: January 18, 2005

DECLARATION UNDER 37 C.F.R. § 1.132

Sir:

I, Donald Lees, declare as follows:

1. I am currently employed as Senior engineer [insert title] by Interface, Inc., the assignee of the above-mentioned patent application, and have been employed in this capacity for 3 years.

2. Prior to my employment with Interface, Inc., I was employed as an engineer by Lockwood Greene.

3. I have been involved in design, scale-up, and testing of the process described in the above-mentioned patent application for 3 years, first as an engineer at Lockwood Greene and then as an engineer at Interface, Inc.

4. The testing described herein was carried out by me or at my direction.

5. Sheared nylon 6,6 fibers from waste carpet was air elutriated and mixed with an ethanol solvent at a concentration of approximately 2.75 wt%. This mixture was heated to a temperature between about 138 °C and 143 °C at a pressure between about 425 psig and 460 psig in a coiled tube heat exchanger for less than 45 minutes (at a flow rate of between 1.32 gpm and 1.5 gpm). The equilibrium vapor pressure for ethanol at these temperatures is approximately 113 psig. The resulting solution was strained to remove undissolved solids, and flashed into a crystallizer tank at a temperature of about 115 °C to about 125 °C. The precipitated nylon was concentrated, dried and obtained as powdered nylon. In order to efficiently dry the material, nylon obtained from a previous run through the process was backmixed into the concentrated nylon/solvent stream fed to the drier.

6. At my direction, the nylon powder was further dried to a moisture content of 500 ppm, pelletized, and extruded through a filter pack and spinnerette to produce nylon fiber. At my direction, the denier and tenacity of this fiber were tested. The denier was found to be 2429 and the tenacity was surprisingly found to be 3.11 lb. This tenacity is surprisingly good because it is at the upper limit for tenacity specifications for drawn virgin nylon fiber.

7. At my direction, the nylon fiber obtained above was spun into yarn and tufted into Lutradur primary carpet backing having a Glasbac backing, at a face weight of 17 oz/yd^2.

8. At my direction various tests were performed on the resulting carpet, which are provided in the table below.

TEST	RESULT
Art 5 yr (Dry) Maintenance	8.25
Art 5 yr (Wet) Maintenance	8
Burrough's Resistance	9083 meg
Delamination – Dry	No separation
Fluorine	2322
IBM Resistance	3783 meg
Light Fastness	2-3 (60 AFUs)
Nitrogen Dioxide	4-5 (2 cy.)
Ozone Fading	4-5 (2 cy.)
Radiant Panel	.70
Radiant Panel – 15 min.	.78
Smoke – Flaming	166
Smoke – Flaming – 4 min.	131
Smoke – Non-flaming	438
Smoke – Non-flaming – 4 min.	66
Stain (red dye 40) – 24 hour	10
Tuftbind –Dry	8.66 lb
Vetterman Drum	1.5 @ 22,000 cy.

9. These tests indicate that fiber prepared according to the process claimed in the above-mentioned patent possesses properties making it suitable for use as carpet fiber. This is surprising because it would have been expected that degradation of fiber properties during intial use as carpet face cloth would diminish the utility of the fiber for carpet facecloth.

10. I further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and further that the foregoing statements were made with the knowledge that willful false statements and the like so made are punishable by fine, or imprisonment, or both, under 18 U.S.C. § 1001, and that such willful false statements may jeopardize the validity of the above-referenced application or any patent issuing thereon.

Date: 1/13/05 Signed: Donald W. Lees

Donald Lees